

SPRING 2009

Equipment Manager

Official
Publication:
AEMP

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Equipment Manager

Official Publication of the Association of Equipment Management Professionals

Spring 2009

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World Class Fleets



By Mike Bates, CEM, 2008-2009 AEMP National President

Attending an AEMP conference a few years ago, I heard past-President Dave Markey, CEM, suggest that equipment managers could and should maintain a “world class” fleet. My first impression was that Dave had his head in the clouds. Maintain a “world class” fleet was the stuff of legends, far out of the league most equipment manager would ever hope for their fleets.

Anyway, why should I care if our fleet was world class? We were doing just fine. How would this so-called “world class fleet” make our jobs more secure and our projects more efficient? How would this “world class fleet” impact our bottom line? As I sat there, envisioning a world class fleet, the dollar signs consumed my thoughts. Managing this world class fleet would definitely have a big price tag attached.

As the discussion unfolded, however, I began to realize he wasn’t talking about having the best equipment money can buy. Instead, it has to do with what we, as fleet managers, can do with what we are given to work with. Striving for a higher caliber of fleet does not necessarily require a bigger budget. Excellence can be achieved through many different channels—a result of skillful decision making, effort, courage, prudence and vision.

Over the years, I have learned that the more you strive to make your fleet “world class,” the better return on investment you will see from your fleet. Take the following example: By ensuring manufacturer warning devices, lock-outs, bells and buzzers are working, I found that the fleet will operate at a high level of safety. As such, insurance costs are held to their minimum because claims are reduced. That is one step closer to world class. Or, by performing preventative maintenance, repair costs and expensive breakdowns are reduced. And since machines are not sitting waiting for repairs, productivity is maximized with an increased uptime. Another step closer to world class.

Now the big question: What does the world class fleet cost? I surmise the figure is less than that of the “okay” fleet. It is less than the “getting by” fleet. It is less than the price paid in dollars or productivity for poor machine performance or the cost of a bad impression on a customer’s jobsite. You see, through small changes, the goal is achievable. Not only is it achievable, in these economic times, it is imperative.

Aristotle once said, “Quality is not an act, it is a habit.” By holding ourselves to make the tough decisions, to analyze costs and our day-in and day-out activities, we can see our “okay” fleets transform into “world class.” As equipment managers, we can think of those fleets as a representation of ourselves: efficient, innovative, and visionary.

Through AEMP training and networking opportunities, I have seen numerous “okay” fleets inch closer to “world class.” I believe, with the help of the association, the tools to achieve world class status are at our fingertips. We have the talent base, we have the experience levels. Combined, the AEMP members are truly nothing short of world class.

Dave Markey wasn’t dreaming. The world class fleet is within our grasp; we owe it to ourselves and our fleets to stand up and reach for it!

A stylized, handwritten signature in black ink that reads "Michael A. Bates". The signature is fluid and cursive, with a long, sweeping underline.

AEMP, OEMs Advance Industry Telematics Standard



Members of the Association of Equipment Management Professionals and representatives from across a wide spectrum of original equipment manufacturers (OEMs) are putting their heads together to develop key fleet-management information and an automation plan to standardize how it is migrated into maintenance-management or enterprise software.

The aim of the AEMP Technology Committee is to allow fleet managers an easier, more efficient way to access basic fleet information from multiple OEMs and to integrate their telematics systems' data into their business-management software.

After two Technology Summits, representatives from AEMP and the OEMs have agreed upon solutions for several issues of standardized data and data delivery.

"Working out these kinds of details takes a true Equipment Triangle approach: Manufacturer, Dealer, End-user," said Stan Orr, CAE, AEMP's Executive Director. "We are pleased to report that all of the participants attending our second summit in February expressed a willingness to make progress on these issues as quickly as possible. Considering today's business environment, we're seeing a tremendous commitment on the part of the OEMs and telematics suppliers."

"End users had expressed some frustration with the lack of standardization and integration of telematics information," said AEMP President Dick Brannigan, CEM. Brannigan was also quick to point out that "although that concept is relatively simple, every OEM and/or telematic provider has a unique collection of data points, different definitions, different polling methods, time/date stamps, etc."

"The steps involved in completing this initiative are complex," Brannigan said. "First, the process of developing standards is not at all simple. Then you realize that every advance or tentative agreement reached requires further internal study by each OEM to determine the feasibility of the proposed solution, the

resources required, and the time needed to implement. The industry must remind itself that every OEM's robust telematics solution is unique. It's going to take time and patience."

The idea for the committee came up at a fall 2007 AEMP Asset Management Symposium. By August 2008, representatives from the Association of Equipment Manufacturers (AEM), Caterpillar, John Deere, Komatsu, Manitowoc, QUALCOMM and Volvo attended an initial AEMP Technology Summit, working with AEM. Committee members and OEM representatives identified a few key data points such as machine location, machine identification, time stamp, date stamp, fuel usage, and hours, and subsequently agreed to provide this nonproprietary data in a standardized file format.

A second Technology Summit was held in February. The meeting was attended by 12 manufacturers, six telematics suppliers, and six end users.

At the second summit, the committee considered the feasibility of adding accumulated idle hours to the list. In a revealing look at the complexities facing the industry on the telematics issue, the discussion revealed that customers, OEMs, and regulatory bodies all define "idle" differently. Attendees agreed that one way in which AEMP could deploy this metric at a future date would be to create a common, industry-acceptable definition. Ideally, end users could then establish performance metrics to help them reduce the percentage of idle time, thereby increasing efficiency while reducing emissions.

The summit yielded a tentative agreement on the computer interface: Data will be delivered in a standard XML format. The initial delivery method will be HTTP, although the Telematics Standards Subcommittee hopes to add support for other delivery methods in order to improve interoperability with a variety of legacy software systems.

AEMP Recognizes Key Members



Augstin Chosen as Member of the Year

Dan Augstin, CEM, has served on the CEM Commission for the past eight years, three years as chairman. He is a past Board member. Dan has led the Certified Equipment Manager program through a critical part of its evolution as it moved from being a text-based exam to a competency-based exam. According to past national president Marilyn Rawlings, CEM, "Over the past five years, I have watched Dan 'give his all' to the CEM Commission and encourage others to do the same. Dan has provided the leadership we needed to direct the Commission through this transition time."



John Deere Awarded Associate of the Year

John Deere has been a member of AEMP since 1985. They have sponsored the Technician of the Year Award every year since its inception in 1986, awarding large tool boxes to the winners. They were the second OEM to join the AEMP Partners for Growth. John Deere consistently volunteers their staff as speakers for AEMP conferences, sponsors numerous events, and currently has staff who serve on the AEMP Foundation, the AEMP Board, Education Committee, Emissions Task Force, Technology Committee, and Corporate Relations Committee.



Sutton Honored with Richard Hawkins Award

Rod Sutton is Editor in Chief of Construction Equipment magazine and Equipment Manager Magazine. Sutton has served in numerous AEMP leadership positions: Trustee of the AEMP Foundation, the AEMP Board of Directors, and chairman of the AEMP Editorial Committee. Rod works tirelessly to deliver new programs to AEMP members and the industry, provide content for the Knowledge Center at aemp.org, and manage AEMP co-sponsored webinars. According to Rick Blesi, publisher of Construction Equipment, "Rod loves the equipment industry, equipment managers and AEMP, and it shows in everything he does!"

2009 Fleet Masters Award Winners



Brett Todd and Ben Tucker, CEM, of Barriere Construction Company accept the Fleet Masters Award for private fleets.

The 2009 Fleet Masters Awards were presented at a dinner during the AEMP 27th Annual Management Conference in Orlando. Fleet Masters are recognized for their practices in the areas of human relations, vendor relations, asset management, maintenance management, and technology.

Barriere Construction Company of Metairie, La., won the Fleet Masters Award for private fleets. Barriere Construction is Southeast Louisiana's resource for high-way heavy and civil construction projects. In addition to asphalt paving products and services, Barriere has diverse capabilities and specialized expertise in a broad range of areas, such as site development and drainage.

Manatee County Fleet Services of Bradenton, Fla., won the Fleet Masters Award for public fleets. Manatee County Fleet Services supports the vehicle and equipment needs of 16 dissimilar departments charged with



Mike Brennan, CEM, and Ron Kennedy of Manatee County Fleet Services accept the Fleet Masters Award for public fleets.

the support of more than 315,000 county residents.

Finalists for the Fleet Masters Awards included Cajun Constructors of Baton Rouge, La., in the private fleet category. Cajun Constructors was a Fleet Masters finalist in 2008. Lee County Fleet Management of Fort Meyers, Fla., was the finalist in the public fleet category.

The Fleet Masters Award was created with Construction Equipment magazine to honor equipment-management professionals who excel in meeting the unique challenges inherent in delivering cost-effective management of mixed fleets of on- and off- road equipment. Nominations are solicited from the entire industry.

The Fleet Masters awards are sponsored by the AEMP Partners for Growth: Castrol, Caterpillar, Construction Equipment, International, John Deere, Komatsu, Manitowoc, QUALCOMM, Trimble and Volvo Construction Equipment.



PLAN FOR 2010

It's not too early to consider entering the 2010 Fleet Masters competition. Review the nomination form available at www.aemp.org, and see what it takes to become a Fleet Master. Start working on it today.

AEMP Foundation Recognizes 2009 National Technicians of the Year

In mid-January, a panel of judges analyzed more than 30 Technician of the Year applications, narrowing down applicants to one winner from the public sector and one winner from the private sector.

The 2009 private-sector Technician of the Year is Dwayne Tracy Still, who has been with the John R. Jurgensen Company for more than 22 years. Mr. Still is committed to safety and has more than 55,345 hours without accident. He even designed and installed a safety shutdown system on a cold-planer milling machine to eliminate the possibility of injury from machine kickback.

Mr. Still is an outstanding diagnostician who has the ability to solve problems on machines with which he has no prior familiarity. Every technician in the organization relies on Mr. Still's assistance in diagnosis of complex problems. On occasion, he even receives phone calls and requests from mechanics that work for OEM dealers.

The John R. Jurgensen Company often turns to Mr. Still to solve equipment needs that cannot be solved through rental or purchase. Recently, he developed a complex hydrostatic ground drive retrofit for a fleet of Barco pavement profilers. The retrofit was so effective that downtime was dropped to almost zero and maintenance was cut in half—even when the \$32,000 retrofit is considered.

The public-sector Technician of the Year is Dennis Kincade from York County, Va. Mr. Kincade serves as

the shop safety coordinator, providing monthly safety training to all personnel. In addition to personal protection, Mr. Kincade is an active participant in the shop's environmental protection program. With his help, the shop eased through a Va. Occupational Health and Safety inspection.

When Mr. Kincade began at York County, the shop had only one computer terminal. He took it upon himself to maximize its utility by advocating for better software. Furthermore, he spearheaded a successful effort to equip each technician with a laptop.

Mr. Kincade has an extensive list of Institute of Automotive Service Excellence (ASE) certifications. The ASE awards the Blue Seal of Excellence to fleet shops that maintain a high level of certification: Thanks to Mr. Kincade, the York County Vehicle Maintenance shop has been a recipient of that award for the past five years.

The AEMP Technician of the Year Award was established in 1989 to spotlight the skill sets required of today's professional technician. Award winners are selected based on professionalism, technical skills, innovative trouble-shooting and diagnostics, and contributions to the technician profession. The AEMP Technician of the Year award is sponsored by John Deere and the AEMP Foundation. The awards luncheon is sponsored by QUALCOMM.



Dennis Kincade, York County, Va., stands next to a replica of the tool box he's won as the public sector Technician of the Year.



Dwayne Tracy Still, John R. Jurgensen Company, receives the private-sector Technician of the Year award from Bob Decker, chair of the AEMP Foundation.

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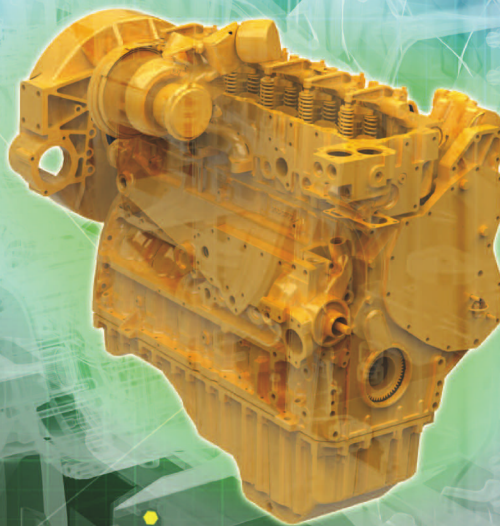
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Ken Mannon, CEM
Bryan K. Maul, CEM
Robert D. McClure, CEM
Rudy Payton, CEM
James B. Pearman, CEM
Raymond Peter, CEM
Michael C. Poorman, CEM
J. Chris Ryan, CEM
Pietro Scarafiotti, CEM
Bill Serner, CEM
Carlton D. Stevens, CEM
Don Walker, CEM

Pete Walsh, CEM
Judy Workman, CEM

2001

Thomas W. Atkins, CEM
Richard G. Bonistalli, CEM
James T. Brewbaker, CEM
James Conley, CEM
Gregg Cox, CEM
Eddy Elliott, CEM
Herbert Gann, CEM
David Harris, CEM
Sam Houston, CEM
Terry Howard, CEM
Kevin Knaebel, CEM
J. Howard Mann, CEM
Calvin Martin, CEM
John L. Nackers, CEM
Todd M. Perrine, CEM
Erle Potter, CEM
John H. Puzenski, CEM
Samuel W. Reiff, CEM
Tom Serfass, CEM
Don Sproue, CEM
Burt Thorpe, CEM
Lindsay E. Walker II, CEM

2000

David Allard, CEM
Dan Augstin, CEM

Brett Burgess, CEM
Don Caplinger, CEM
John D. Gaines, CEM
Guy Gordon, CEM
Dave Gorski, CEM
Nick Helms, CEM
Blair Kinker, CEM
Dave Markey, CEM
Charles S. Miller III, CEM
Kevin Power, CEM
Gary Smith, CEM
Richard Stanbery, CEM
Bill Underwood, CEM
Bill Vanden Brook, CEM
William J. White, CEM
Carl Wulf, CEM

1997

Al Beamer, CEM
Frank Bull, CEM

1996

Gary Carpenter, CEM
Bill Cyford, CEM
Gary Dow, CEM
Robert Draves, CEM
Robert Gordon, CEM
Robert Turner, CEM
Dale Warner, CEM

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Biodiesel Strategies

It's a viable alternative, so what needs to be known about putting biodiesel into a fleet?

By G.C. Skipper, Contributing Editor

Although biodiesel has been around since farmers discovered that crop remains, such as soybeans and corn, could be burned as fuel for tractors, it didn't leave the farm for the big city until a few years ago.

Biodiesel and other alternative fuels were shoved to center stage by the ratcheting up of government demands for a cleaner environment and the disturbing realization—

pounded home by spiraling fuel prices—that the United States had become just as dependent on oil-rich nations as a smoker is to cigarettes.

One of the first steps toward addressing both problems of a cleaner environment and petroleum diesel withdrawal were efforts to find alternative fuels. Ramped-up demands from federal and state agencies such as the Environmental Protection Agency (EPA) and the

California Air Resources Board (CARB), linked with political pressure, lit a fire under the search for nontraditional fuels.

Today many fleets, particularly municipal, are successfully using biodiesel. Proponents say it is a renewable, oxygenated fuel made from agricultural resources; is biodegradable; and is free of sulfur. But before fleet managers jump in and introduce biodiesel into their fleets, certain factors must be considered.

Biodiesel is created by combining lesser amounts of petroleum diesel with processed vegetable oil, animal fats, corn, soy, or recycled oil products. It has become one of the leaders in first-generation alternative fuels. Blends are identified by the letter "B" and a number, which represents the percentage of bio-products in the blend. For example, B20 has 20 percent bio and the rest is petroleum diesel.

These blends can be used in compression ignition engines with little or no modifications, according to the Navistar Engine Group. Generally speaking, OEMs have been slow to approve biodiesel, primarily because no standards existed that would ensure the quality of the fuel when it was refined. In the past, OEMs



Jeffrey Tews pumps biodiesel from the underground storage tank at the Milwaukee central repair garage into a new municipal fleet dump truck.



Biodiesel is created by combining lesser amounts of petroleum diesel with processed vegetable oil, animal fats, corn, soy or recycled oil products. It has

become one of the leaders in first-generation alternative fuels. (Photo courtesy of John Deere.)

warned fleet managers that biodiesel use could void the engine warranty.

Although OEMs were in the forefront in researching alternative fuels (John Deere was the first off-highway engine manufacturer to recommend biodiesel and factory-fill it in North America), some had concerns about the availability and consistency of suppliers; increased NOx emissions from biodiesel; compatibility of seals, gaskets and other material; cold-weather performance; stability and storage; thermal degradation at elevated temperatures; and lower energy content.

Today, however, the OEM comfort zone has greatly improved, thanks to two industry standards. One is BQ 9000 from the National Biodiesel Board, a national biodiesel accreditation commission. The second is ASTM D6751. Both address how biodiesel is processed and handled.

Joe Mastanduno, product marketing manager for engines and drivelines at John Deere Forestry and Construction, says the standards have enabled the fuel to become a mainstream product.

“Now that we have a yardstick to hold biodiesel up to, I think many OEMs feel more comfortable about it.”

John Bartz, Volvo

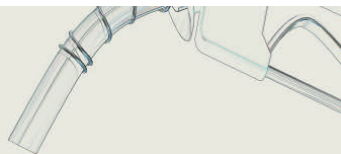
“These standards were developed over the last few years to make sure the fuel is produced and handled correctly,” he says. “That was one of the problems biodiesel had in the past. Everybody produced it and handled it differently, so when it

got to the user it did not have the desired affects sometimes. Today biodiesel is a real product.”

Volvo Construction Equipment also waited for biodiesel standards, according to John Bartz, emissions solutions manager.

“There was really nothing out there to measure biodiesel against,” he says. “Now that we have a yardstick to hold biodiesel up to, I think many OEMs feel more comfortable about it. Although standards don’t guarantee quality, this goes a long way toward a more stable supply base.”

During the past two or three years, many engine manufacturers have approved B20 and other blends for their engines, according to Mastanduno, but he cautions fleet managers to confirm that with individual engine OEMs. Fuel systems need to be approved, too.



6 Tips on Biodiesel

Jeffrey Tews, fleet operations manager for the City of Milwaukee, offers the following pointers to others considering the switch:

- Know your supplier and where he gets the biodiesel.
- Ask if the biodiesel meets BQ 9000 standards.
- Make sure the fuel has been manufactured to ASTM standard D6751, the latest revision.
- Find out what type of biodiesel. Is it a vegetable oil or an animal fat? Both will comply with the standards, but in colder regions, such as Milwaukee, tallow-based biodiesel has a gel point of about 45F. The gel point of soy biodiesel is about 32F. To keep gel point down, Tews says, use additives.
- Be careful to monitor water levels in storage tanks. "Biodiesel attracts and holds water more so than petroleum diesel. You can expect to find a little water drop-out in the bottom of your tank, which means the tank will have to be pumped out every once in a while," Tews says.
- Test fuel periodically in cold-weather use. To avoid problems, Tews advises fleet managers who buy their fuel to add a requirement in their fuel specifications that CFFP (Cold Fuel Filter Plugging) must be, for example, -30F, or whatever the appropriate temperature should be.

At Volvo, Bartz says biodiesel can be used across the company's entire product line. "There is a different percentage for smaller engines versus larger engines, but all are approved for at least B5," he says.

Navistar has approved biodiesel in blends up to B20 for all International engines. Although engine modifications might be required for some engines, those manufactured in 2007 and beyond need none to accommodate the use of B20. Some states now mandate B20, so Navistar's MaxxForce engines can safely burn that blend. Navistar also approves blends of biodiesel up to B5 in all MaxxForce engines prior to 2007, provided the fuel meets ASTM

Parsons, a fuel/coolant engineer with Caterpillar. "They are laid out for end-user consideration in our company documents, such as Caterpillar Machine Fluids Recommendations."

Even so, biodiesel raises questions as to what types of fuel-related failures individual manufacturers may exclude from warranty coverage.

Jeffrey Tews, fleet operations manager for the City of Milwaukee (Wis.), has no qualms about using biodiesel. He has 493 pieces of construction equipment, 260 dump trucks, 200 refuse trucks, and 150 other miscellaneous vehicles running on the fuel. And he has a mixed fleet that includes engines



Jeffrey Tews checks water-level readout from the central repair garage underground tank monitoring system. The system's more-accurate readouts have replaced the "sticking the tank" checking method.

D6751 and D975 standards, according to a company information sheet.

Caterpillar allows B30 to be used on most engines under the condition that the biodiesel and the final blend meet the appropriate specifications.

"There are numerous items to consider beyond this," says Jared

manufactured by Caterpillar, Cummins, John Deere and others.

Tews gradually introduced biodiesel into his fleet. He started with B2 in the latter part of 2006. In 2007 he "ramped up" to B5 and later in the year to B10. "For a good portion of 2008, we burned

B20," he says.

Tews said the end result has been pretty much what he expected, thanks to extensive research he did before trying biodiesel. He discovered, for example, that biodiesel was a detergent and so expected an increase in filter changes.

"We knew we would be changing fuel filters at an accelerated rate," he says. "The first full year of use we saw almost a two-fold increase in the amount of fuel filters we replaced. Anything that is in the tank is basically being cleaned up and is caught in the filters." The high rate of filter changes lasted for about a year, then it started to taper off as the system became cleaner.

The fuel changeover did not require any changes in storage, Tews says. "We just started pouring B2 into our storage tanks. We didn't have to change any infrastructure, we didn't have any O-ring problems, and we didn't have to do any costly modifications."

Maria Redmond, biofuel sector specialist for the Wisconsin Office for Energy Independence in Madison, suggested cleaning tanks before converting.

"The conversion is minimal," she says. "You clean the tank out so there is no diesel residue in it, depending on how old the tank is. The tank should be evaluated to see if it has the proper valves. If not, the Department of Commerce, which does the inspection, recommends investing in a new tank."

Biodiesel should not be stored any longer than six months, either, as it is susceptible to algae and water, OEMs warn.

Tews also found that biodiesel does not have the same amount of BTUs per gallon as petroleum



A John Deere technician refuels a tractor with biodiesel. Deere prefers that B5 be used but says concentrations up to 20 percent (B20) can be used in all its engines. (Photo courtesy John Deere.)

diesel, so he did not expect any increase in fuel economy.

"However, we definitely have cleaner emissions as a result of biodiesel," he says. "For example, when you burn B20 you are decreasing your hydrocarbons by about 20 percent and decreasing your carbon monoxide and particulate emissions by about 12 percent each."

Running biodiesel does cost a little more, but Tews called that expense marginal. "We found it worked out to about one penny per percentage point. That's about two cents more per gallon than the cost of just petroleum-based diesel."

By coincidence, when he started burning biodiesel in August 2006, it was right before the big changeover to ultra low sulfur fuel, which weakens lubricity. "What we lost in lubricity with the new fuel we made up for with the 2 percent biodiesel," he says. "The timing couldn't have been better."

Last year, Tews' municipal fleet burned 175,000 gallons of biodiesel.

He generally burns about 1 million gallons of regular diesel per year, and he's looking to increase biodiesel use this year.

The Wisconsin Office for Energy Independence will help to connect fleets with a qualified biodiesel supplier, Redmond says. Her office routinely bids out for fuel every two years, but biodiesel has not been included due to a lack of demand. All that changed recently.

"Currently [fleets] can go to any supplier they choose to purchase the fuel," Redmond says. "The next time we go out to bid we will include biodiesel."

Redmond illustrates the statewide trend toward biodiesel with these statistics: The consumption of B20 in 2006, when biodiesel was first used, totaled 6,404 gallons. In 2007, consumption went up to 60,331 gallons. When statistics are finalized for 2008, she says, biodiesel consumption should be only slightly more than was used in 2007.

"That's because the biodiesel

industry itself has slowed down," she says. "There hasn't been that much consumption in Wisconsin recently. Production issues and quality concerns accounted for the slowdown in the state."

Wisconsin is working toward a 10-percent reduction in petroleum-based diesel by 2010. One of the biggest challenges her agency faces, Redmond says, is price.

"It's hard for us to push biodiesel when fleets in each of our agen-

cies have tight budgets due to the economy," she says. "Biodiesel is more expensive. By the formula we use, B2 is about two cents higher than regular diesel; B5 is five cents higher; B10, 10 cents higher; and so forth. There are tons of benefits, but price and cold flow are issues."

Other concerns identified with biodiesel include moisture absorption, incompatibility with some filters in the field, increased servicing of engine components, possible

oxidation at elevated temperatures, possible formation of sludge and sediments, and possible damage to paint exposed to biodiesel.

Many of these issues will be resolved as biodiesel is improved, Redmond says.

"Biodiesel and the other present-day alternative fuels have provided a good base for future development," she says. "We are very aware of carbon footprint. We don't want to create a bigger problem than we solve." **EM**

A Dissenting View

Not all fleet managers believe that biodiesel is ready for prime time. One of them is Robert Andrade, CEM, vice president, asset management for Parsons.

"There are so many requirements that it's more of a problem than a benefit for us," he says. "Even climate considerations are involved."

In addition to temperature, he cites labor expenses, fuel storage that requires close monitoring, and warranty questions.

Biodiesel is readily available for Parsons' operations in Sumner, Washington, but "big emblems" are posted on

pumps that caution buyers that they might not want to use the fuel if the temperatures is below 45 F.

"That's because the fuel supplier doesn't want to get pinged for leaking gaskets, gelling and fuel filter clogging," Andrade says. "In the Pacific Northwest, the temperature is always bouncing between 30 degrees at night and maybe 50 degrees during the day. Those types of temperature ranges eliminate about four months of the year."

Andrade says cost is a concern, especially in a union area, for the extra labor associated with testing, keeping stock segregated, and monitoring the fuel for microscopic growth.

Moisture contamination is a problem. "You have to minimize the moisture condensation to keep it stored," Andrade says. "That means vehicle tanks have to be as full as possible at all times. You have to keep testing the fuel, but how often depends on the grade of the biodiesel: B15, B20, B100. Each blend requires different test periods. The more biodiesel you have, the more you have to test it, the more you have to monitor it."

If a machine goes down, fuel will sit in the tank. "With some crane parts, you can wait for six months," Andrade says. He says the limited use of biodiesel among fleets "is simply because our industry is not very good at fuel management to start with.

"With biodiesel, you have to take fuel management to the next level," he says. "That might work in a high-production environment, but construction is not high-production. Many fleets don't have the resources to take care of the costs associated with monitoring, testing and storing the fuel."

Finally, Andrade says he's concerned about the risk exposure surrounding engine warranties. He says fleet managers need to be aware that if biodiesel causes a problem, the engine may not be covered by the warranty.



Bob Andrade, CEM, Parsons, has decided not to use the alternative fuel in his fleet. Here he poses with a biodiesel pump that has a sign cautioning buyers about temperatures and biodiesel performance.

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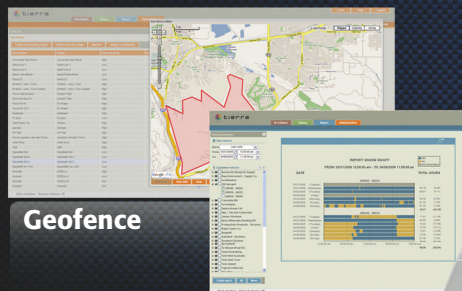
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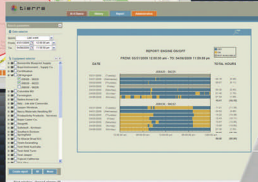
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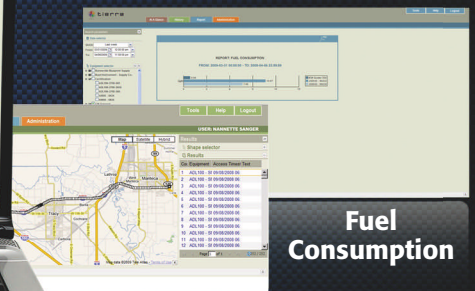
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Informal Mentor

There is no procedures manual, but Chris Ryan and his staff at Boh Bros. continually work at employee development.

By G.C. Skipper, Contributing Editor

Mentoring, a word that conjures up a certain academic mystique, may seem out of place in the dirt-moving, yellow-iron world of construction with its hard hats and clanging shops. Fleet managers, too busy monitoring machines and tracking fuel consumption, utilization rates and an endless array of other daily functions, aren't apt to pay much attention to the word, much less understand it.

Yet the many faces of mentoring are quickly recognizable once you know what it is. Just ask Chris Ryan, CEM, vice president of equipment for Boh Bros. Construction in New Orleans. He's been doing it for 34 years.

"Mentoring takes on many different forms," Ryan says. "It is not a formal program with us, and there is no procedures manual. But over the years, we've learned that there are steps that need to be taken to develop people in the different crafts, develop supervisors, develop machine operators, drivers and technicians."

In other words, mentoring is nothing more than helping train, guide and direct employees along their particular career paths. Boh Bros., for example, uses apprentices and makes sure they receive

additional training along with the basics. They are teamed up with qualified journeymen to make sure they are properly instructed before they are allowed to work on their own, Ryan says.

Technicians, for example, start out as mechanic helpers and gradually proceed through online electronic training by several major OEMs in such crafts as engine repair, hydraulics, electrical and drive train.

"We have an understanding that if they are not going to develop, then we can't use them."

Chris Ryan, CEM

"Employees do it at their own pace on their own time," Ryan says. "During this time period while they are gaining the knowledge they need to do the job, they are working with a qualified journeyman. That gives them hands-on training on a daily basis and that, in turn, gives them the knowledge base they need to work on their own."

The informal mentoring program also extends to the company's over-the-road truck drivers, Ryan says.

Boh Bros. uses a "step wise" method for progressing in this area.

"We don't just hire someone off the street to drive our largest low-boy tractor," he says. "We typically hire someone to drive a flatbed or delivery truck. Once they get the proper endorsements and licensing, we give them the opportunity to build added time on other vehicles, such as a roll back truck."

Experienced drivers monitor this training, and once management and the drivers feel the neophyte is ready, they move him to the next step. That could be a fuel truck, for instance. It takes awhile, Ryan says, but eventually the trainee reaches the premiere position of driving the company's largest lowboys.

Ryan doesn't just select an individual that he thinks is bright and trainable to be mentored. Anyone who is qualified to be hired by the company can expect the same intensive career training.

The incentive for trainees to spend their own time to develop their skills is simple: They get more pay as they progress. Yet if an individual goes six or eight months with no training activity on his record, a conference is held with that person. "We have an understanding that if they are not going to develop, then we can't use them."

At the top of the priority list for anyone who works at Boh Bros, regardless of position, is safety. The company uses a job safety analysis (JSA) to reinforce this emphasis on safe and proper procedures.

"JSAs refer to a process where, for instance, if someone is going to pull the tracks off a bulldozer today, that person has to think of all the things that can happen, think of all the hazards involved in taking the tracks off," Ryan says, "He then lists them, and after that, he lists the things that can be done to protect himself from those hazards."

This conscious process of analyzing what they are going to do each day forces employees to stop and think, Ryan says. "I can't tell you how important this is to our business. The challenge is to keep the process fresh so it doesn't become just more paper work," he says. Managers need to be constantly working with employees to help them understand the importance

of JSAs to safe operations.

One employee who knows firsthand how successful the company's informal mentoring program has been is Gary Lipani. His first job at Boh Bros. was as a laborer. Today, he is the supervisor of the company's equipment facility in Hammond, La.

"I started out in the pipe division and stayed there a couple of years," Lipani says. When Ryan found out Lipani had experience working with glass, Lipani was given an opportunity to move to the equipment department.

"I was not a mechanic," Lipani says. "But I was good at working with glass. At the time, we were using a couple of outside vendors to do our glass work. Chris Ryan wanted to bring that work in-house, and when he found out I had some experience in this area, he moved me over to the equipment division. Eventually, we brought all the glass work in-house, repairing cranes,

trucks and other equipment."

Lipani's work was monitored by Ryan and an immediate supervisor. The process went so well that Lipani was offered an opportunity to move into the office when a position came open.

"My immediate supervisor asked me if I was interested—and I certainly was," Lipani says. He progressed from there. Now, as supervisor of the Hammond facility, Lipani finds himself in the mentoring loop, guiding other employees along career paths and having them advance safely and with the fully developed skills they need.

"There is a tremendous responsibility that goes with [mentoring]," Lipani says. "We are putting people out on the road everyday, and in construction, there are a lot of opportunities to get hurt. You have to be willing to take on that responsibility and the attitude that goes with it"

Lipani is an avid proponent of mentoring. "It is absolutely invaluable in our business."

"Mentoring is a two-way street," Ryan says. "Any supervisor with any ability knows that he has to learn from his trainee as well."

Mentoring around contractors, Ryan says, and the response he hears most often is, "I don't mentor."

"Those contractors aren't even aware that they are already doing it," he says. "What about the safety meetings they hold or assigning guys to do a job and discussing the hazards of that job with them? What about the continuing communication that is required to make sure people are working safely, efficiently and are doing quality work?"

"That," he says, "is mentoring." **EM**



Mentoring has been the basis of employee career advancement at Boh Bros. Construction for 34 years. Although the company has no formal program, it is an important part of the Boh Bros. corporate culture. Chris Ryan, CEM, left, mentored Gary Lipani, who started out as a laborer and now is supervisor of the Boh Bros. facility in Hammond, La.



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No Time for Idling

For savvy fleet managers, the days of engine idling are over.

By G. C. Skipper, Contributing Editor

It's simple, really. By eliminating engine idle time, equipment-management professionals plug up a big hole that wastes fuel, and simultaneously, they rid the environment of health-damaging pollutants. The rub, however, is to impress on vehicle and equipment operators the importance of turning engines off when work isn't being done.

During a 2005 meeting of the Great Lakes Regional Pollution Prevention Roundtable in New York, Mike Moltzen, Environmental Protection Agency, Region 2, encouraged fleet professionals to use current technology in addition to operator training to reduce idling

time. Moltzen's recommendations included auxiliary power units, small engines that provide power to the main engine without idling; advanced truck stop electrification for long-haul rigs; and automatic shutdown devices, sometimes called idle limiters. Limiters are timed to turn off the engine, as a rule, after three to five minutes of idle. Moltzen informed managers that federal funds were available to implement such technologies.

Moltzen's message in 2005: "The Three R's—retrofit, replace, reduce idling." Fleet managers have paid attention, including Bill Vanden Brook, CEM, fleet service superintendent for the City of

Madison (Wis.).

Vanden Brook installed idle limiters mainly on his on-highway equipment. "That's where our fuel is primarily consumed," he says. "Heavy diesel trucks and some of the newer off-highway machines [also] now have idle limiters."

Vanden Brook says newer computer-controlled engines have a parameter that allows them to be programmed to shut off after a pre-determined amount, such as three minutes or five minutes, of idling.

The shut-down time can vary, says Vanden Brook. "If it's very cold—like today in Wisconsin, it's five below zero—you have a different parameter setting. Or you can use

ambient air temperature sensors that tie into the idle limiter. As the name implies, the sensors detect the ambient air temperature, and if it is below a certain degree or above a certain degree, shuts down the engine along with the heater or air conditioner. It can also be programmed to continue running, depending on how the idle limiter is set."

The options are numerous, Vanden Brook says, and they can be as simple or as complex as the circumstances require. Idle limiters are money-savers and cut down on harmful emissions, thus meeting state and EPA standards. But on the down side, they require maintenance that not all fleets can provide.

"Maintenance tends to require more technical knowledge and ability than the old days," Vanden Brook says, "so technician training plays in pretty heavily."

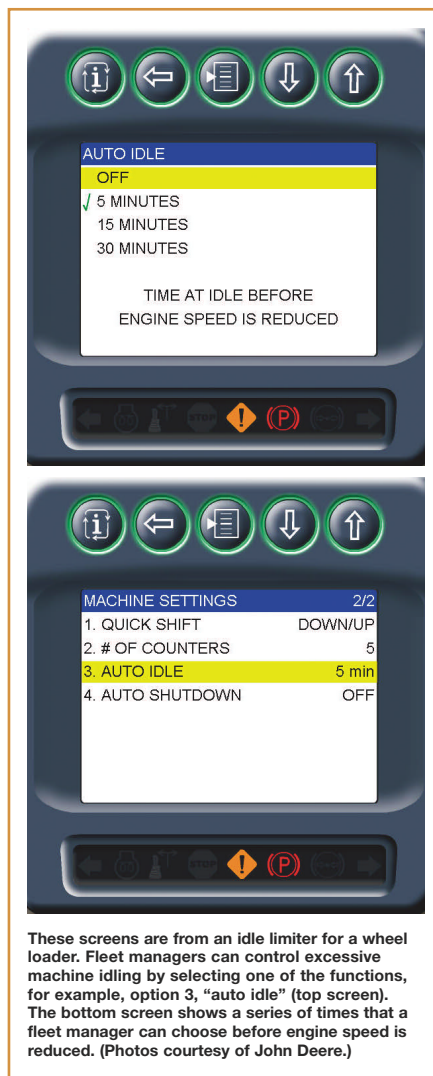
Shut down devices can be factory installed when equipment is ordered or retrofitted with a variety of aftermarket products. Vanden Brook plans to follow the retrofit route and use federal funds pay for it.

"We have applied for a \$400,000 grant that is available through the EPA," he says. "This will let us retrofit a fair number of equipment pieces. The grant money not only includes idle limiters, but also other technologies, such as auxiliary power units and dedicated fuel tanks for biodiesel."

Idle reduction devices will go on 105 units in Vanden Brook's fleet.

"You could save 105 gallons of fuel a day," he says. "From an emissions standpoint, you are not generating any pollutants because you aren't burning that amount of fuel.

Also, these are newer technology engines so they burn cleaner than older non-Tier engines. If we can reduce more particulates, we could avoid becoming a nonattainment area [no mandatory vehicle inspections]. We are right on the border."



If Vanden Brook obtains the federal grant, it will allow him to contract with local equipment dealers to make the change and do the programming instead of relying on his own staff.

Vanden Brook also factored in the return on investment.

"It's hard to get a true ROI at times because so much depends on the individual operator," he says. "A very diligent operator who shuts the engine off every time he takes a lunch break doesn't need an idle limiter.

"But if you have someone who starts the engine at 7:00 in the morning and doesn't shut it off until he leaves work at 3:00 in the afternoon, then you have an opportunity to save a gallon of fuel a day with an idle limiter. Considering the cost of fuel, it would not take long to get your ROI."

Idle limiters also eliminate one maintenance service per year for every vehicle, Vanden Brook says, which is about half the cost. He estimates the return could be realized between six months and two years.

Many OEMs have their own idling technology, including Navistar.

"There are some telematic devices that can be installed to remotely monitor a unit," says Nick Lengacher, Navistar's product manager, North American Vocational Trucks. "The International system, called AWARE, allows a fleet manager to go into a portal and monitor idle time. It does not give him the ability to remotely shut down the vehicle. There is some liability involved there."

The International idle limiter system detects when a PTO is activated and the engine is ramped up. "We won't shut the engine down in a case like that," Lengacher says.

A fleet manager could also install idle limiters with no problem, Lengacher says. "There is no new hardware to add. Any International dealer with the software tool can install it. Many bigger fleets actually have the software capability to do the installation themselves.

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Parameters established by the fleet manager are set by laptop.”

Lengacher says fuel savings can be calculated based on a rule of thumb of one gallon of fuel burned per hour of idling.

Joe Mastanduno, product marketing manager for engines and drivelines at John Deere Forestry and Construction, says that idle limiters simply have a timer inside that counts time and, at some point based on a pre-set number, kicks in. “With electronically controlled engines, the device monitors what the engine is doing, and takes action.”

Two sets of intervals are generally considered with idle limiters. One is auto idle, when the computer senses the engine has been at idle for a long time and brings the idle down. The second is a timer that takes action only after the auto idle runs a certain amount of time. Auto shut down turns off the machine.

Although it is easier to install idle limiters at the factory, Mastanduno says, a fleet manager can have a third party handle the installation. Since idle limiters are inexpensive (\$500 to \$1,000) the ROI is quick, especially with escalating fuel prices.

“It depends on how you train the operator,” he says. “In effect, it forces the operator to get out of the cab,

“Idle limiters are money-savers and cut down on harmful emissions. But on the down side, they require maintenance that not all fleets can provide.”

Bill Vanden Brook, CEM
Fleet Service Superintendent
Madison, Wis.

not sit there having lunch with the engine idling.”

Among the studies conducted by Deere, Mastanduno says some show that certain types of machines idle 30 percent to 40 percent of the time.

“Loaders, for example, waiting for the next truck to come in, fall into that category,” he says. “You have to look at each machine and calculate how much time the machine is idling. If it falls into that 30-to-40 percent category, you can realize an immediate reduction of 30 to 40 percent in fuel costs.”

Shut downs, however, shouldn’t catch the operator off guard. “You don’t just want to let it happen,” Mastanduno says. “The guy may be into the next operation and you don’t want the machine to just cut out. You have to have data coming back to keep your guy informed.”

Although each OEM has its own idle limiter designed for its specific



Refuse trucks can be equipped with idle limiters to avoid excessive idling. The limiter on this International is programmed to detect the difference between

engine idling and power take-off unit engagement, so not to shut down a PTO in operation. (Photo courtesy Navistar.)



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To avoid excessive engine idling this International dump truck is equipped with an idle limiter that automatically shuts the engine down after a pre-determined time allotted for idling. Parameters are set by the fleet manager. (Photo courtesy Navistar.)

engine, Mastanduno says, “when a customer buys the engine, he buys the computer along with it. The computer comes with a package and in it is the software for the idle limiter. The auto idle limiter is in that software package.”

Sam Houston, CEM, and division chief fleet manager for the City of Jacksonville (Fla.), says if all vehicles, on- or off-road, are thrown into the mix, they idle, on average, 25 percent of the time. “That’s significant when you consider that an hour of idling is equivalent to 30 minutes of driving,” he says.

Houston says he could save about \$150,000 to \$200,000 a year if he could get his operators (except fire truck drivers) to cut down on unnecessary idling.

Although he is not yet using idle limiters, Houston has instituted a policy prohibiting engine idling. Backed by Jacksonville’s mayor, he has met with all department heads, asking them to enforce the new policy. He has sent out a flurry of e-mails to all vehicle coordinators. He has made up special cards to post in operator cabs, and nearly every vehicle has a bumper sticker with a phone number for citizens to use in reporting vehicles not following the no-idling policy.

The message is clear, Houston says. “We are policing you. We are watching you. We are going to stop idling.” He’s hopeful his operators and drivers will “do the right thing and I can get the results I want voluntarily.” If not, he’ll start looking at idle limiters. **EM**

Dangerous Reminder

Sometimes it’s easy to lose sight of what is being fought on the battleground. The EPA’s Mike Moltzen reminds us what’s at stake.

- Particulate matter: deep lung penetration
- Nitrogen Oxides (NOx): smog/ ozone precursor
- Air toxics: 40 hazardous chemicals

Diesel pollution causes aggravated asthma, lung damage, respiratory ailments, cancer and premature death.

Tax Exemption

Fleet managers who have idle limiters on mobile or stationary equipment could be exempt from paying federal excise tax on the devices.

The exemptions are part of the Energy Improvement and Extension Act, which became effective October 4, 2008.

The idling reduction technologies are organized by the technology type and listed by company/model.

For additional information and further details, fleet managers should see the instructions for Form 720, Quarterly Federal Excise Tax Return, which can be found at www.irs.gov, or contact Stephanie Bland or Celia Gabrysh at the IRS, (202) 622-3130.



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**CONSTRUCTION
EQUIPMENT**

Lift Equipment Maintenance Tips

The interdependence of the Equipment Triangle keeps cranes and other lifting equipment operating safely.

By John Bittner



The cost of unexpected downtime due to inferior parts or associated components not functioning per specification will increase the equipment's total lifecycle cost.

Your crane is down on a critical job site with no time to lose. Twenty guys are standing around waiting for a beam to be lifted into place or a concrete wall erected, and the whole job comes to a screeching halt because the equipment isn't working properly. You're tempted to buy that inexpensive will-fit part from the guy down the street, just to get things up and running again. Here's why it isn't worth the risk.

Proper lift equipment maintenance not only prolongs machine life, but it is also the first step toward keeping workers safe on the job. There are a number of maintenance considerations specific to cranes that equipment maintenance technicians should keep in mind.

One of the simplest, yet most important, things to do is to use OEM-supplied parts. This is the only way to ensure the integrity of the replacement. These parts are inspected and quality-control tested by the OEM to exact equipment specifications designed by the manufacturer. Non-OEM parts suppliers, in most cases, are not even aware of the manufacturer's specifications nor do they have access to review the original specifications against the design drawings.

The decision to use aftermarket parts is often driven by one of two things: availability or cost.

Availability of replacement parts is critical to the operational efficiency and uptime for any piece of equipment. When equipment requires repair, some end-users focus on the initial cost of the part. But they fail to consider the true cost of a repair and the life-time cost of ownership.

The cost of unexpected downtime due to inferior parts or associated components not functioning per

specification will increase the equipment's total lifecycle cost. For example, if a generic part functions at 95 percent of the original part's efficiency, has a lifespan rated at 80 percent of the OEM part, and initially costs 20 percent less, end-users could risk losing thousands of dollars due to additional downtime while also potentially spending more on fuel to operate the equipment.

Availability is another issue. Obtaining the right part quickly is a top priority for all equipment owners with a crane down in the field. Many equipment manufacturers have developed numerous systems and processes to be able to deliver faster parts and service.

An extensive dealer and distributor network is one of the first steps to being able to provide efficient, localized service. These dealers,

supported by manufacturer-supported regional repair technicians, are the front line when faced with equipment down in the field. And working with them for more routine preventive maintenance can not only avoid unscheduled downtime, but can also increase the life of the crane.

Look for dealers who encourage their technicians to take advantage of manufacturer-sponsored training programs. These programs help build a better understanding of operating systems, components, maintenance, and repair of specific crane brands and models. This knowledge, applied to a downed crane, helps ensure that it will be repaired quickly and correctly, giving additional peace of mind not available when purchasing from a non-OEM approved source.

Some manufacturers, through

their dealer networks, also offer 24/7 online parts ordering so parts can be ordered and shipped at any time, from any place in the world.

But the most important thing to keep in mind when you are responsible for repairing and maintaining cranes or any other type of equipment is to follow manufacturer-recommended service intervals. Service intervals and other maintenance recommendations outlined in OEM service manuals are designed to help keep equipment running at optimal levels, which helps owners and operators stay up and running and profitable with their equipment.

Remember the old saying: Maintenance doesn't cost, it pays!

— John Bittner is director, global marketing, for Manitowoc Crane Care.



HOW TO MAINTAIN HOOKS

1. Before use, hooks must be inspected by an experienced rigger.
2. Remove a hook from service if any of the following are in evidence:
 - a. Cracks, nicks or gouges
 - b. Twist exceeding 10 degrees from plane of unbent hook
 - c. Damage or malfunction to the latch
 - d. Throat opening exceeding 15 percent
 - e. Wear exceeding 10 percent of original dimension
 - f. Damage from heat
 - g. Unauthorized repairs
3. Cracks, nicks and gouges should be removed by a qualified person. Grind lengthwise, following the contour of the hook.
4. If removing the damaged area results in a loss of more than 10 percent of the original dimension, the hook must be replaced.
5. Never repair, alter or reshape a hook by welding, heating, burning or bending, unless approved by the hook manufacturer.
6. When lifting, ensure the hook, not the latch, supports the load. The sling or lifting device must always be seated properly in the bowl of the hook.
7. Never side load, back load or point load a hook. All reduce hook strength and create an unsafe condition. Point loading can reduce hook capacity as much as 60 percent.

A side profile of a yellow Deere 825G wheel loader. The machine is shown from the side, facing right. It has a large black tire on the front and a smaller one on the rear. The Deere logo is visible on the side of the chassis. The bucket is lowered and positioned at the front. The background is dark and out of focus.

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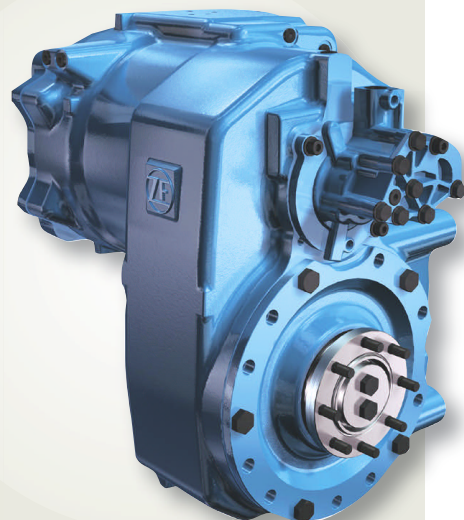
HOW TO MAINTAIN WIRE ROPE



1. Put on gloves before handling and checking the condition of your wire ropes.
2. Wire ropes should be cleaned at intervals using a brush to remove hardened deposits of grease, which prevent the penetration of lubricants.
3. Do not use solvents for cleaning. They may destroy the textile or synthetic components which make up the wire rope.
4. The wire rope must be checked over its entire length.
5. Check the level of wear and the proper functioning of the sheaves: One defective sheave in a circuit may result in premature wear to the wire rope.
6. Apply grease using the product recommended by the manufacturer. The lubrication intervals must take the specific conditions of usage into account: proximity to the coast, metallurgical or chemical environment, harsh climatic conditions, etc.
7. All wire ropes showing a broken strand, a collection of visible broken wires, deformation, corrosion, kinks, pleats, crushing, etc. should be scrapped.
8. A worn or damaged wire rope should only be replaced with a rope recommended by the equipment manufacturer.
9. When replacing the wire rope, it must be possible to brake the drum (coil) to prevent the rope from unwinding too fast or dragging when winding up.
10. The length of the new wire rope should match the crane configuration and should cover all drum winding layers.

HOW TO MAINTAIN MOBILE CRANE TRANSMISSIONS

1. Follow fluid and filter rules set by the transmission manufacturer. Many transmission failures can be avoided with adherence to service schedules.
2. Transmission fluid cools, lubricates and transmits hydraulic power. Too little fluid and the torque converter, bushings, bearings and clutches will not receive an adequate supply of oil. Too much oil can cause it to aerate, resulting in overheating.
3. Oil leaks primarily occur around the side of the transmission casing, external oil cooler or where power take-off points are located. Check these points frequently.
4. Try to keep a transmission free of contaminants. Solid foreign bodies have a detrimental effect on bushings and roller bearings.
5. Driveshaft components, the oil cooler, and transmission filter regulator should be examined at 25,000 mile intervals.
6. Check fastener tightness. Bolts with an incorrect torque can cause vibration. Stripped threads may lead to transmission removal for main case replacement.
7. Check electronics and wiring harnesses as part of an inspection.
8. Have crane operators report potential troubles such as odd automatics shifts, fluid leaks and unusual noises and take action to avoid downtime.



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5. IT'S THE VIABLE LONG-TERM SOLUTION

Advanced EGR is the right solution for the future. After years of experimenting with SCR, other truck manufacturers in Europe are now moving toward EGR solutions as a more viable long-term answer. Even others in North America are currently developing other non-SCR-based solutions.

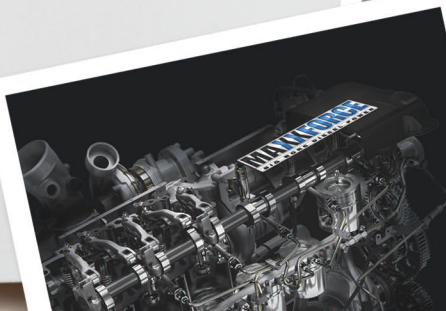
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7. THE ROAD AHEAD IS CLEAR

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